US009127514B2

(12) United States Patent
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(10) Patent No.: US 9,127,514 B2
(45) Date of Patent: Sep. 8, 2015

(54) BLADDER TYPE CRIMPER

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(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 451 days.

(21) Appl. No.: **13/710,050**

(22) Filed: **Dec. 10, 2012**

(65) **Prior Publication Data**

US 2014/0158372 A1 Jun. 12, 2014

(51) **Int. Cl.**

E21B 17/12	(2006.01)
B30B 5/02	(2006.01)
E21B 17/10	(2006.01)
B21D 39/04	(2006.01)
F16L 13/14	(2006.01)

(52) **U.S. Cl.**

CPC ***E21B 17/1078*** (2013.01); ***B21D 39/048*** (2013.01); ***B30B 5/02*** (2013.01); ***E21B 17/1014*** (2013.01); ***E21B 17/12*** (2013.01); ***F16L 13/141*** (2013.01); *F16L 2013/145* (2013.01)

(58) **Field of Classification Search**

CPC E21B 17/08; E21B 12/00; E21B 19/16; E21B 17/1078; E21B 17/1085; B30B 1/003; B30B 5/02; B30B 11/001; F16L 13/141; F16L 2013/145; B21D 39/048

See application file for complete search history.

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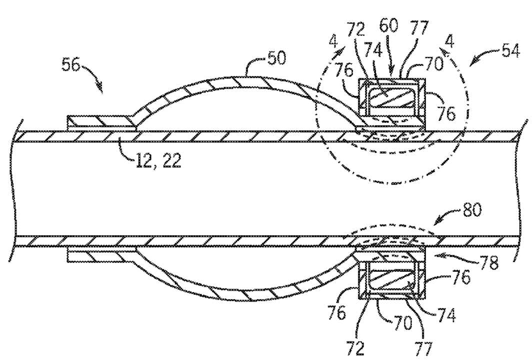
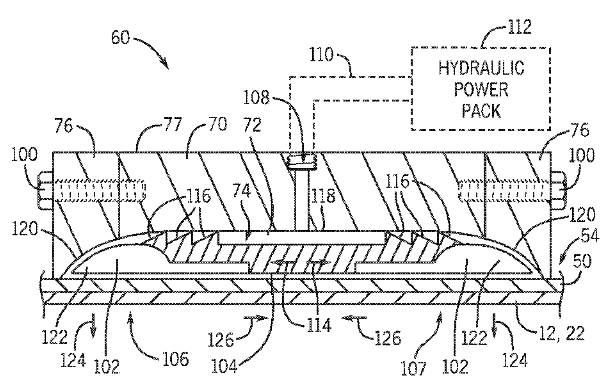
(57) ABSTRACT

Embodiments of the present disclosure are directed toward a bladder-type crimper. The crimper includes a cylindrical body comprising a cavity and a bladder assembly disposed within the cavity, wherein the bladder assembly comprises an elastic bladder and a plurality of fingers arrayed about opposite ends of the elastic bladder, wherein the cylindrical body and the bladder assembly are configured to be disposed about a tubular.

20 Claims, 3 Drawing Sheets





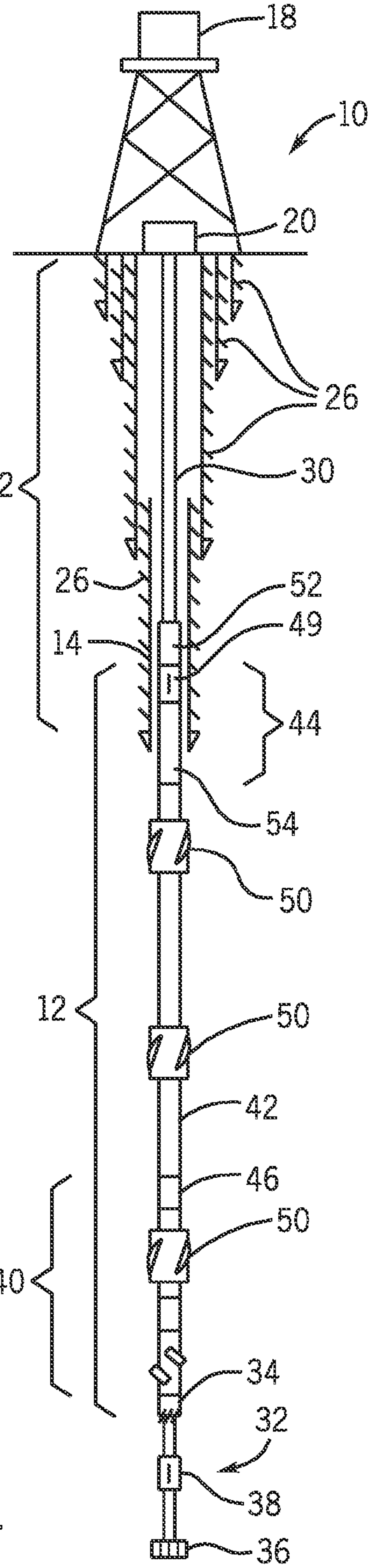


FIG. 1

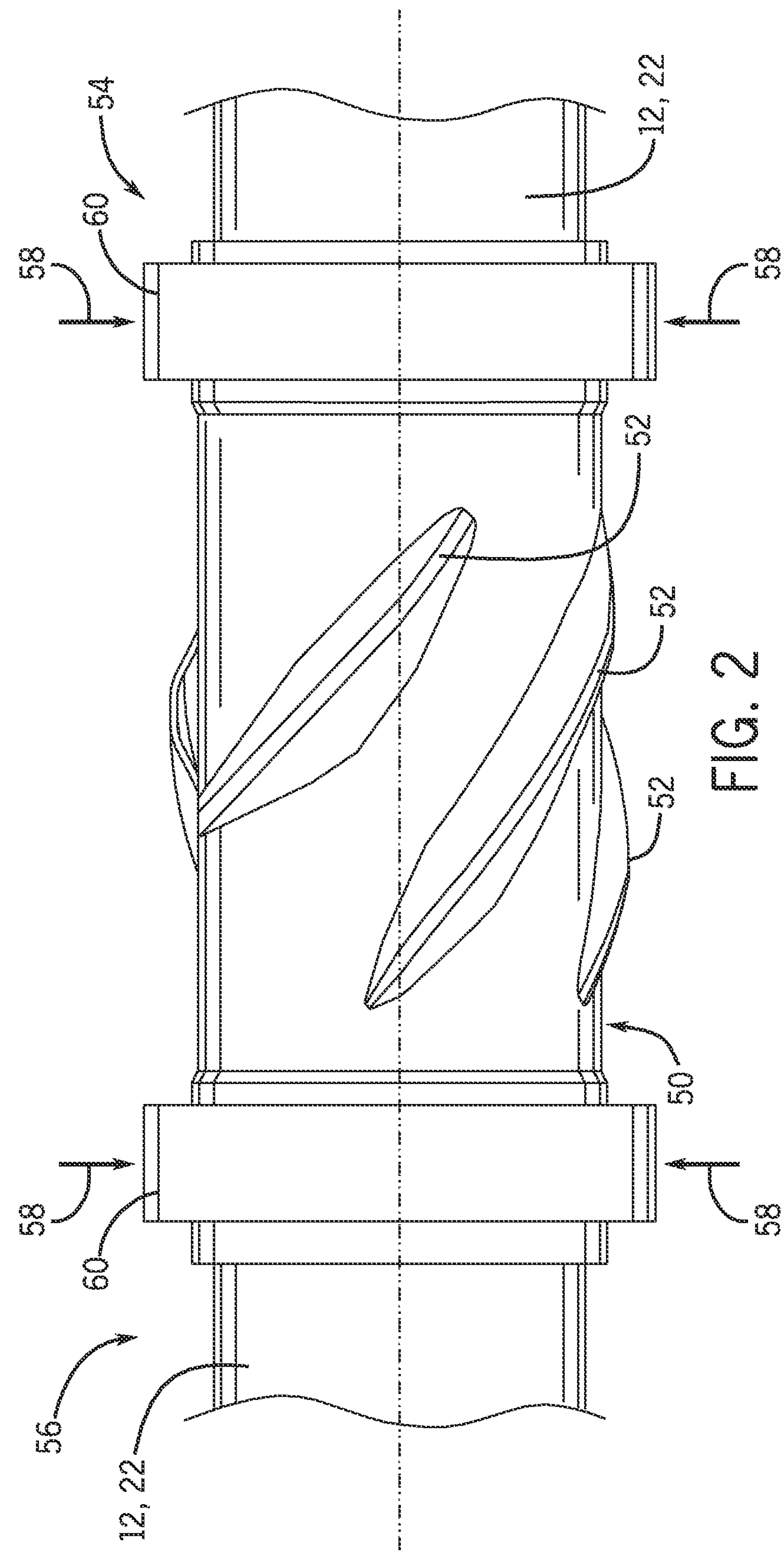


FIG. 2

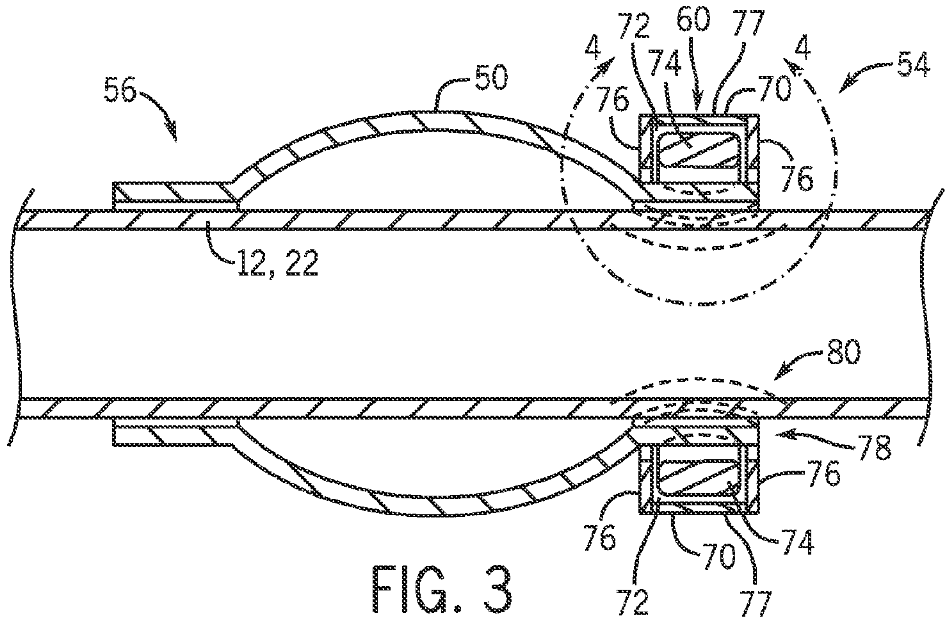


FIG. 3

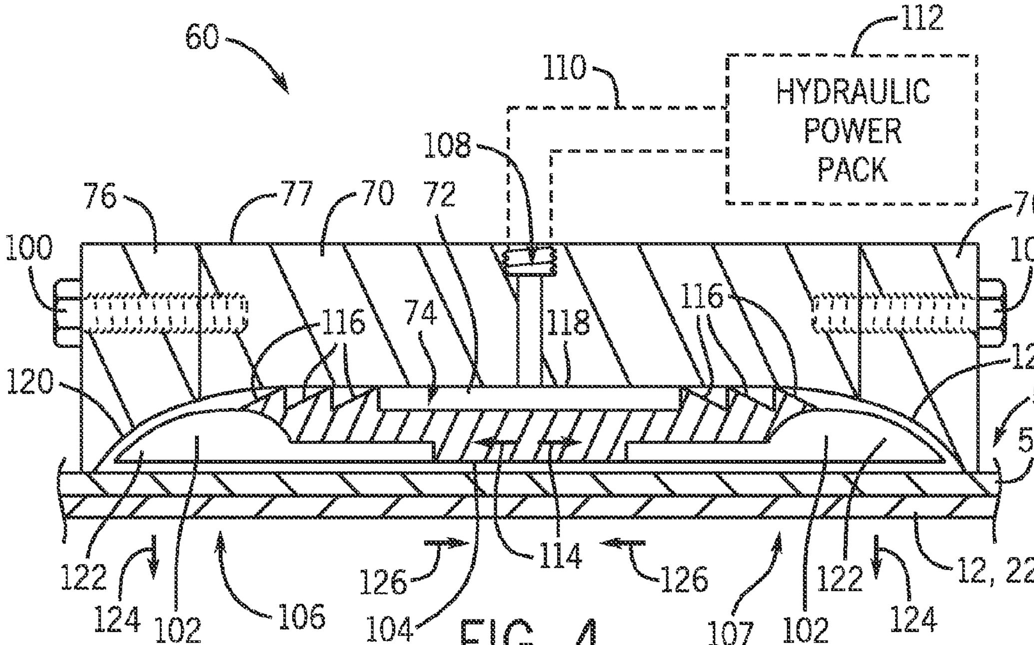


FIG. 4

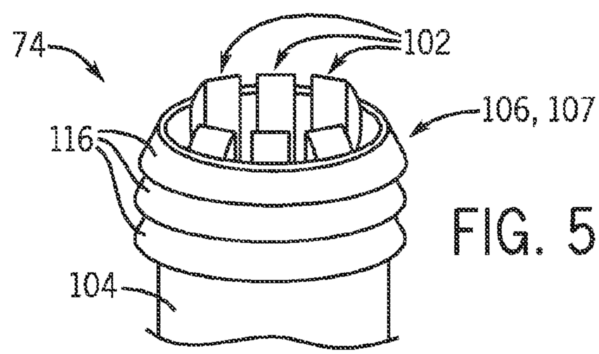


FIG. 5

BLADDER TYPE CRIMPER

FIELD OF DISCLOSURE

The present disclosure relates generally to the field of well drilling operations. More specifically, embodiments of the present disclosure relate to the use of a bladder-type crimper for connecting a centralizer or other component to casing or tubing in a down-hole environment.

BACKGROUND

In conventional oil and gas operations, a well is typically drilled to a desired depth with a drill string, which includes drill pipe and a drilling bottom hole assembly (BHA). Once the desired depth is reached, the drill string is removed from the hole and casing is run into the vacant hole. In some conventional operations, the casing may be installed as part of the drilling process. A technique that involves running casing at the same time the well is being drilled may be referred to as "casing-while-drilling."

Casing may be defined as pipe or tubular that is placed in a well to prevent the well from caving in, to contain fluids, and/or to assist with efficient extraction of product. When the casing is properly positioned within a hole or well, the casing is typically cemented in place by pumping cement through the casing and into an annulus formed between the casing and the hole (e.g., a wellbore or parent casing). Once a casing string has been positioned and cemented in place or installed, the process may be repeated via the now installed casing string. For example, the well may be drilled further by passing a drilling BHA through the installed casing string and drilling. Further, additional casing strings may be subsequently passed through the installed casing string (during or after drilling) for installation. Indeed, numerous levels of casing may be employed in a well. For example, once a first string of casing is in place, the well may be drilled further and another string of casing (an inner string of casing) with an outside diameter that is accommodated by the inside diameter of the previously installed casing may be run through the existing casing. Additional strings of casing may be added in this manner such that numerous concentric strings of casing are positioned in the well, and such that each inner string of casing extends deeper than the previously installed casing or parent casing string.

Liner may also be employed in some drilling operations. Liner may be defined as a string of pipe or tubular that is used to case open hole below existing casing or liner. Casing is generally considered to extend all the way back to a wellhead assembly at the surface. In contrast, a liner merely extends a certain distance (e.g., 30 meters) into the previously installed casing or parent casing string. However, a tieback string of casing may be installed that extends from the wellhead downward into engagement with previously installed liner. The liner is typically secured to the parent tubular by a liner hanger that is coupled to the liner and engages with the interior of the upper tubular.

Thus, establishing a down-hole operation, such as may be involved in conventional oil and gas operations, may involve deploying and operating a variety of tubular components (e.g., casing, liner, drill pipe, and so forth) down a tubular wellbore, while the wellbore is being formed or after the wellbore is formed. In certain instances, the tubular elements may be fitted with a component that acts to centralize the tubular elements within the bore, e.g., a centralizer. For example, during a casing drilling operation, a series of centralizers may be fitted to the casing during the drilling opera-

tion to keep the casing centered within the bore. For example, the centralizers may be fitted at the joints where casing segments are joined (such as every 30 feet) or at other periodic distances to insure that the casing remains centered in the bore.

BRIEF DESCRIPTION

In accordance with one embodiment, a crimper includes a ring-shaped body having a cavity and a bladder assembly disposed within the cavity, wherein the bladder assembly comprises an elastic bladder and a plurality of fingers arrayed about opposite ends of the elastic bladder, wherein the ring-shaped body and the bladder assembly are configured to be disposed about a tubular.

In accordance with a second embodiment, a system includes a cylindrical body having a cavity, a port extending from an exterior of the cylindrical body to the cavity, and end caps removably coupled to opposite ends of the cylindrical body. The system further includes a bladder assembly disposed within the cavity of the cylindrical body, where the bladder assembly includes a cylindrical bladder, a first plurality of fingers arrayed about a first end of the cylindrical bladder, and a second plurality of fingers arrayed about a second end of the cylindrical bladder, wherein the cylindrical body and the bladder assembly are configured to be disposed about a tubular, and the bladder assembly is configured to abut the tubular.

In accordance with a third embodiment, a method includes positioning a crimper about a tubular accessory to be secured to a tubular, pumping a fluid in a cavity of a crimper body, applying a radially inward force to the tubular accessory with a plurality of fingers of a bladder assembly disposed within the cavity of the crimper body, draining the fluid from the cavity, and removing the crimper from the tubular accessory.

DRAWINGS

These and other features, aspects, and advantages of the present disclosure will become better understood when the following detailed description is read with reference to the accompanying drawings in which like characters represent like parts throughout the drawings, wherein:

FIG. **1** is a schematic representation of a well being drilled, in accordance with aspects of the present disclosure;

FIG. **2** is a side view of a centralizer attached to a casing or liner, in accordance with aspects of the present disclosure;

FIG. **3** is a side cross-sectional view of a centralizer attached to a casing or liner, illustrating a bladder-type crimper for attaching the centralizer to the casing or liner, in accordance with aspects of the present disclosure;

FIG. **4** is a partial side cross-sectional view of a centralizer attached to a casing or liner, illustrating a bladder-type crimper for attaching the centralizer to the casing or liner, in accordance with aspects of the present disclosure; and

FIG. **5** is a perspective view of the bladder assembly, illustrating one end of the bladder assembly.

DETAILED DESCRIPTION

The present disclosure relates generally to the attachment of a centralizer (or other accessory) to a down-hole component, such as a casing, liner, or drill pipe. Embodiments of the present disclosure are directed to providing and using a bladder-type crimper for attachment of a centralizer or other accessory to a tubular component. For example, the bladder-type crimper may include an annular or cylindrical body that encloses a bladder having steel inserts or fingers disposed about an end of a centralizer or other accessory positioned about a casing or liner. The annular body further includes a port through which a fluid, such as hydraulic fluid, may be pumped into a cavity of the annular body. As fluid is pumped into the annular body, the fluid stretches and expands the bladder and the steel inserts or fingers. In the manner described below, the steel inserts or fingers of the bladder are forced radially inward into the end of the centralizer or accessory, thereby pressing the end of the centralizer or accessory into the casing or liner. As the pressure within the annular body increases, the force applied by the steel inserts to the end of the centralizer or accessory may exceed a "crush" value of the centralizer or accessory and the casing or liner. As the crush values of centralizer or accessory and the casing or liner are exceeded, the centralizer or accessory may be crimped or coupled to the casing or liner.

With the foregoing in mind, and turning to the figures, FIG. **1** is a schematic representation of a well **10** that is being drilled using a casing-while-drilling technique, wherein a liner string **12** is about to be hung within a previously installed liner **14** that was cemented into the well **10**. In other embodiments, different drilling techniques may be employed. The well **10** includes a derrick **18**, wellhead equipment **20**, and several levels of casing **22** (e.g., conductor pipe, surface pipe, intermediate string, and so forth), which includes the previously installed liner **14**, which may be casing in some embodiments. The casing **22** and the liner **14** have been cemented into the well **10** with cement **26**. Further, as illustrated in FIG. **1**, the liner string **12** is in the process of being hung from the previously installed liner **14**, which may be referred to as the parent liner **14**.

While other embodiments may utilize different drilling techniques, as indicated above, the well **10** is being drilled using a casing-while-drilling technique. Specifically, the liner string **12** is being run as part of the drilling process. In the illustrated embodiment, a drill pipe **30** is coupled with the liner string **12** and a drilling BHA **32**. The drilling BHA **32** is also coupled with an upper portion of the liner string **12** and extends through the liner string **12** such that certain features of the drilling BHA **32** extend out of the bottom of the liner string **12**. Indeed, an upper portion of the drilling BHA **32** is disposed within the inside diameter of the liner string **12**, while a lower portion of the drilling BHA **32** extends out of a liner shoe **34** at the bottom of the liner string **12**. Specifically, in the illustrated embodiment, a drill bit **36** and an under reamer **38** of the drilling BHA **32** extend out from the liner string **12**. Thus, the drilling BHA **32** is positioned to initiate and guide the drilling process.

The liner string **12** includes a shoe track **40**, a string of tubing **42**, and a liner top assembly **44**. The shoe track **40** defines the bottom of the liner string **12** and includes the liner shoe **34** to facilitate guiding the liner string **12** through the wellbore. In the illustrated embodiment, the shoe track **40** also includes an indicator landing sub **46** to facilitate proper engagement with the drilling BHA **32**, and various other features, such as a pump down displacement plug (PDDP). The string of tubing **42** is essentially the main body of the liner string **12** that connects the shoe track **40** with the liner top assembly **44**. The liner top assembly **44**, which defines the top of the liner string **12**, includes a liner hanger **49** that is capable of being activated and/or deactivated by a liner hanger control tool **52**. The liner top assembly **44** may also include a liner drill lock section **54**, which includes a liner drill lock that facilitates engagement/disengagement of the drill string **30** from the liner string **12**. The liner drill lock may be actuated by external or internal components affixed to or part of a body of the liner hanger **49**.

Once a desired depth is reached, the liner string **12** may be hung or set down to facilitate detachment of the drilling BHA **32**. As illustrated in FIG. **1**, the liner string **12** may be hung from the parent liner **14**, and the drilling BHA **32** may be detached from the liner string **12** and pulled out of the well **10** with the drill string **30** and an inner string (not shown). In order to hang the liner string **12** from the parent liner **14**, the hanger **49** may be activated with the liner hanger control tool **52**. In some embodiments, the hanger **49** is not utilized and the liner string **12** is set on bottom.

The casing and liner strings (e.g., the casing **22**, the parent liner **14**, and the liner string **12**) are run into the well **10** using a running tool. As used herein, the terms "casing", "liner", and other such components may be generally referred to as "tubular." As will be appreciated from this discussion, a wide array of tubular elements (e.g., casing, liner, drill pipe, and so forth) may be positioned within the wellbore. For example, in the above described implementation of casing-while-drilling, casing **22** or liner string **12** may be positioned in the well bore as part of the drilling or deployment operation. For instance, in one type of implementation, the casing **22** may consist of 30 foot segments of a suitable diameter (e.g., 13⅜ inches) that are joined as the casing **22** is deployed down the wellbore. However, in other implementations, length of the casing segments and/or the diameter of the casing **22** may be any suitable length or diameter.

As discussed herein, some of the various tubular elements, such as the casing **22**, may be coupled with one or more centralizing elements (e.g., centralizers **50**) or other accessories attached using techniques in accordance with the present disclosure. Centralizing elements generally keep tubular elements centered within the wellbore when deployed and operated (e.g., rotated). Turning to FIG. **2**, one example of a centralizer **50** disposed about the casing **22** or liner string **12** is shown. In this example, the centralizer **50** has raised features **52** disposed circumferentially about the centralizer **50**. During operation, these raised features **52** of the centralizer **50** act to keep the casing **22** or liner string **12** centered within the wellbore. In one implementation, the walls of the centralizer **50** are ½ inch thick, though in other implementations the walls of the centralizer **50** may be any suitable thickness. In addition, the centralizer **50** includes a first end **54** and a second end **56** that may each be attached to the casing **22** or liner string **12** with a bladder-type crimper **60**. That is, the first end **54** and the second end **56** may be crimped radially inward by the bladder-type crimper **60**, thereby securing the centralizer **50** to the casing **22** or liner string **12**. More specifically, when the centralizer **50** is in position to be secured to the casing **22** or liner string **12**, one bladder-type crimper **60** is positioned about the first end **54** of the centralizer **50**, and another bladder-type crimper **60** is positioned about the second end **56** of the centralizer **50**. In the manner described below, the bladder-type crimpers **60** are used to press the first and second ends **54** and **56** of the centralizer radially inward, as indicated by arrows **58**, thereby crimping the centralizer **50** to the casing **22** or liner string **12**.

While the preceding discussion has generally related to the application of the centralizer **50** to the casing **22** or liner **12** using bladder-type crimpers **60**, it should be appreciated that this implementation has been provided by way of example only, and is not intended to limit the scope of the present disclosure. That is, the use of bladder-type crimpers **60** as disclosed herein may be similarly applied to attach other elements or structures to a tubular element. For example, bladder-type crimpers **60** as disclosed herein may be used to apply wear bands or other accessories to the casing **22** or liner string **12** or to any other suitable tubular element. With the foregoing discussion in mind, it should be appreciated that certain presently described embodiments allow engagement of a structure, such as a centralizer or wear band, to a tubular element, such as the casing **22** or liner string **12** by the use of bladder-type crimpers **60** as discussed herein.

FIG. **3** is a side cross-sectional view of an embodiment of the centralizer being attached to the casing **22** or liner string **12** with the bladder-type crimper **60**. Specifically, the bladder-type crimper **60** is securing (e.g., crimping) the first end **54** of the centralizer **50** to the casing **22** or liner string **12**. As mentioned above, the bladder-type crimper **60** operates to press or force the centralizer **50** (e.g., the first end **54** or the second end **56** of the centralizer **50**) radially inward. In particular, the bladder-type crimper **60** applies a radially inward force sufficient to press the centralizer **50** into the casing **22** or liner string **12**. In this manner, the bladder-type crimper **60** secures the centralizer **50** to the casing **22** or liner string **12**.

In the illustrated embodiment, the bladder-type crimper **60** includes an annular body **70** (e.g., a circular or ring-shaped body), which is positioned about the first end **54** of the centralizer **50**. In one embodiment, the annular body **70** may include a single annular, cylindrical, or ring-shaped component, while in other embodiments, the annular body **70** may include multiple components, such as two half-cylinder components that cooperatively form the annular or ring-shaped body. Indeed, the annular body **70** may include any number of components to form the annular body **70**. The annular body **70** forms a cavity **72**, which houses a bladder assembly **74** (e.g., a cylindrical bladder assembly) that also is positioned about the first end **54** of the centralizer **50**. More specifically, the bladder assembly **74** is disposed about and abuts the first end **54** of the centralizer **50**. As discussed in detail below, the bladder assembly **74** may include multiple components. The bladder assembly **74** is held within the cavity **72** of the annular body **70** by two end caps **76** and an outer wall **77** of the annular body **70**. The annular body **70** is rigid and is configured to prevent extrusion of the bladder assembly **74** in a radially outward or lateral direction. For example, the annular body **70** may be made from steel or other metal. Additionally, the end caps **76** may be secured to the outer wall **77** of the annular body **70** by bolts, screws, threaded plugs, a weld, braze, or other fastener.

As discussed in detail below, when the bladder assembly **74** is expanded within the cavity **72** of the annular body **70**, the annular body **70** directs the force of the expanding bladder assembly **74** radially inward. In this manner, the bladder assembly **74** may apply a force to the first end **54** of the centralizer **50**. As the force applied by the bladder assembly **74** increases, the force may exceed a "crush" value of the centralizer **50**, thereby causing plastic deformation of the centralizer **50**. That is, the force applied by the bladder assembly **74** may cause the first end **54** of the centralizer to be deformed radially inward (e.g., toward the casing **22** or liner string **12**), as indicated by reference numeral **78**. The force applied by the bladder assembly **74** may further exceed a "crush" value of the casing **22** or the liner string **12**, thereby causing the casing **22** or liner string **12** to deform radially inward as well, as indicated by reference numeral **80**. In this manner, the centralizer **50** may be crimped, and therefore secured, to the casing **22** or liner **12**.

FIG. **4** is a partial side cross-sectional view of the bladder-type crimper **60** of FIG. **3**, taken along line **4-4**. As mentioned above, the annular body **70** of the bladder-type crimper **60** encloses the bladder assembly **74** within the cavity **72** formed by the bladder-type crimper **60**. In the illustrated embodiment, the end caps **76** are coupled to the outer wall **77** with fasteners **100** to form the annular body **70**. The end caps **76** may be removed by removing the fasteners **100**, thereby enabling access to the bladder assembly **74** when necessary. As mentioned above, the fasteners **100** may include bolts, screws, threaded plugs, welds, brazes, or other fasteners.

The bladder assembly **74** includes a plurality of fingers **102** cast into an elastic bladder **104** (e.g., a stretchable or expandable component). For example, the elastic bladder **104** may be annular or cylindrical and may be formed from a rubber or other elastomer. The fingers **102** may be formed from steel or other metal and are cast into the elastic bladder **104** on opposite ends **106**, **107** of the elastic bladder **104**. That is, the fingers **102** are cast in an array about a circumference of the annular elastic bladder **104** at both ends **106**, **107** of the elastic bladder **104**. In certain embodiments, the fingers **102** may be equidistantly spaced about the elastic bladder **104**, and the bladder assembly **74** may include the same number of fingers **102** cast into each end **106** of the elastic bladder **104** (see FIG. **5**).

As mentioned above, in operation, the bladder assembly **74** expands and applies a radially inward force on the centralizer **50** and the casing **22** or liner string **12**. More specifically, the annular body **70** of the bladder-type crimper **60** has a port **108**, to which a fluid line **110** may be attached. For example, the fluid line or hose **110** may route a fluid (e.g., a hydraulic fluid or oil) from a hydraulic power pack **112** into the cavity **72** of the bladder-type crimper **60**. The hydraulic power pack **112** may be configured to supply a hydraulic fluid or oil to the bladder-type crimper **60** at an elevated pressure (e.g., 2000, 4000, 6000, 8000, 10000, or more pounds per square inch). As fluid is pumped into the cavity **72** of the bladder-type crimper **60**, pressure within the cavity **72** builds. As the pressure within the cavity **72** builds, the elastic bladder **104** may expand and stretch (e.g., axially or laterally in directions **114**). Indeed, in the illustrated embodiment, the elastic bladder **104** includes seals **116** which contact an inner surface **118** of the annular body **70**. The seals **116** are configured to provide a pressure seal for the fluid entering the cavity **72** of the bladder-type crimper **60**. Consequently, the elastic bladder **104** may be further biased in the directions **114** as pressure within the cavity **72** increases. It is important to note that the elastic bladder **104** may not be a hollow component. Rather, the elastic component **104** at least partially forms the cavity **72** within the bladder-type crimper **60** and is configured to expand or stretch as pressure within the cavity **72** builds from hydraulic fluid or oil pumped into the cavity **72**.

As the elastic bladder **104** expands axially or laterally outward (e.g., in the directions **114**), the fingers **102** of the bladder assembly **74** contact inner surfaces **120** of the end caps **76**. As shown, respective distal ends **122** of the fingers **102** have contours which substantially match the respective contours of the inner surfaces **120** of the end caps **76**. Specifically, the contours of the distal ends **122** of the fingers **102** and the inner surfaces **120** of the end caps **76** are generally curved or angled. As such, the fingers **102** and the end caps **76** engage with one another as the elastic bladder **104** expands within the cavity **72**. More specifically, the curved contours of the distal ends **122** of the fingers **102** and the inner surfaces **120** of the end caps **76** cause the fingers **102** to be directed radially inward (e.g., in a direction **124**) as the elastic bladder **104** and the fingers **102** expand axially in the directions **114**. In this manner, force from the hydraulic power pack **112** is applied via the fingers **102** as a radially inward force on the centralizer **50**. As will be appreciated, the curved contour of the fingers **102** and the inner surfaces **120** of the end caps **76** may also reduce the likelihood of the fingers **102** becoming wedged between the end caps **76** and the centralizer **50**. To further reduce wedging between the fingers **102** and the end caps **76**, the fingers **102**, the end caps **76**, and/or the centralizer **50** may have a lubricant applied to their respective surfaces.

As mentioned above, as the pressure within the cavity **72** increases, the force applied to the centralizer **50** by the fingers **102** increases. The force applied by the fingers **102** may increase above a "crush" value of the centralizer **50** and the casing **22** or liner string **12**, thereby causing plastic deformation of the centralizer **50** and the casing **22** or liner string **12**. In this manner, the centralizer **50** may become crimped and secured to the casing **22** or liner string **12**. The amount or degree of crimping (e.g., the amount of plastic deformation experienced by the centralizer **50** and/or the casing **22** or the liner string **12**) completed via the bladder **104** may be measured using a variety of methods. For example, a bore gauge may be used to measure an inner diameter of the casing **22** or liner string **12** at the location of the crimp.

After the centralizer **50** is crimped and secured to the casing **22** or liner string **12**, the pressure within the cavity **72** of the bladder-type crimper **60** may be released. That is, the fluid (e.g., hydraulic fluid or oil) may be released from the cavity **72** by the hydraulic power pack **112**. As the pressure is reduced within the cavity **72**, the elastic bladder **104** may contract back to its original state (e.g., in directions **126**), thereby decreasing the force applied on the centralizer **50** by the fingers **102**. Thereafter, the bladder-type crimper **60** may be removed.

As will be appreciated, the disclosed embodiments may be more lightweight and practical than traditional crimping mechanisms, such as large mechanical crimpers. Additionally, the disclosed bladder-type crimper **60** may include fewer components than traditional crimpers. The various components of the bladder-type crimper **60** (e.g., annular body **70** and bladder assembly **74**) may also be more inexpensive to manufacture and replace.

FIG. **5** is a perspective view of the bladder assembly **74**, illustrating one end **106**, **107** of the bladder assembly **74**. As described in detail above, the bladder assembly **74** is a cylindrical assembly that is disposed about the first end **54** or the second end **56** of the centralizer **50** or other tubular accessory. Additionally, the bladder assembly **74** is enclosed by or housed within the annular body **70** of the bladder-type crimper **60**. That is the annular body **70** is disposed about the bladder assembly **74** when the bladder-type crimper **60** is positioned about the centralizer **50** or other tubular accessory. As discussed above, the fingers **102** of the bladder assembly **74** may be formed from steel or other metal and are cast into the elastic bladder **104** (e.g., along an interior surface of the elastic bladder **104**) on opposite ends **106**, **107** of the elastic bladder **104**. Similarly, as shown in the illustrated embodiment, the fingers **102** are equidistantly spaced about a circumference of the elastic bladder **104**. As mentioned above, any suitable number of fingers **102** may be cast into the elastic bladder **104** at each end **106**, **107**.

As discussed in detail above, the disclosed embodiments are directed generally to the attachment of the centralizer **50** (or other accessory) to a down-hole component, such as the casing **22** or liner string **12**, with the bladder-type crimper **60**. In certain embodiments, the bladder-type crimper **60** includes the annular body **70** that encloses the bladder assembly **74**, which includes the elastic bladder **104** with fingers **102**. During use, the bladder-type crimper **60** is disposed about an end (e.g., the first or second end **54** or **56**) of the centralizer **50** or other accessory positioned about the casing **22** or liner strong **12**. The annular body **70** further includes the port **108** through which a fluid, such as hydraulic fluid or oil, may be pumped into the cavity **72** of the annular body **70**. As fluid is pumped into the annular body **70**, the fluid stretches and expands the elastic bladder **104** and the fingers **102**. In this manner, the fingers **102** of the bladder assembly **74** are forced radially inward into the end (e.g., the first end **54** or the second end **56**) of the centralizer **50** or other accessory, thereby pressing the centralizer **50** or accessory into the casing **22** or liner string **12**. As the pressure within the annular body **70** increases, the force applied by the fingers **102** to the centralizer **50** or accessory exceed a "crush" value of the centralizer **50** or accessory and the casing **22** or liner string **12**. As the crush values of centralizer **50** or accessory and the casing **22** or liner string **12** are exceeded, the centralizer **50** or accessory is crimped and secured to the casing **22** or liner string **12**.

While the present disclosure may be susceptible to various modifications and alternative forms, specific embodiments have been shown by way of example in the drawings and tables and have been described in detail herein. However, it should be understood that the embodiments are not intended to be limited to the particular forms disclosed. Rather, the disclosure is to cover all modifications, equivalents, and alternatives falling within the spirit and scope of the disclosure as defined by the following appended claims. Further, although individual embodiments are discussed herein, the disclosure is intended to cover all combinations of these embodiments.

The invention claimed is:

1. A crimper for crimping an oilfield accessory to an oilfield tubular, comprising:
- a ring-shaped body comprising a cavity; and
- a bladder assembly disposed within the cavity, wherein the bladder assembly comprises an elastic bladder and a plurality of fingers arrayed about opposite ends of the elastic bladder, wherein the ring-shaped body and the bladder assembly are configured to be disposed about the oilfield tubular and pressurized to crimp the oilfield accessory to the oilfield tubular.

2. The crimper of claim **1**, wherein the ring-shaped body comprises end caps removably coupled to the ring-shaped body, wherein each of the end caps comprises inner surfaces configured to engage with the plurality of fingers.

3. The crimper of claim **2**, wherein the inner surfaces have a curved profile, and each of the plurality of fingers has a curved profile.

4. The crimper of claim **1**, wherein the plurality of fingers are cast into the elastic bladder.

5. The crimper of claim **1**, wherein the ring-shaped body comprises a port configured to flow a fluid into the cavity.

6. The crimper of claim **5**, comprising a hydraulic power pack configured to supply the fluid, wherein the fluid is a hydraulic fluid or oil.

7. The crimper of claim **1**, wherein the elastic bladder comprises a rubber.

8. The crimper of claim **1**, wherein the elastic bladder comprises a plurality of lips configured to engage with an inner surface of the ring-shaped body to form a plurality of seals.

9. The crimper of claim **1**, wherein the plurality of fingers comprises a metal.

10. A system for crimping an oilfield accessory to an oilfield tubular, comprising:
- a cylindrical body, comprising:
- a cavity;
- a port extending from an exterior of the cylindrical body to the cavity; and
- end caps removably coupled to opposite ends of the cylindrical body; and

a bladder assembly disposed within the cavity of the cylindrical body, comprising:

a cylindrical bladder;

a first plurality of fingers arrayed about a first end of the cylindrical bladder; and

a second plurality of fingers arrayed about a second end of the cylindrical bladder, wherein the cylindrical body and the bladder assembly are configured to be disposed about the oilfield tubular, and the bladder assembly is configured to abut the oilfield tubular upon pressurization to crimp the oilfield accessory to the oilfield tubular.

11. The system of claim **10**, wherein the first and second pluralities of fingers are cast into the cylindrical bladder.

12. The system of claim **11**, wherein the cylindrical bladder comprises a rubber, and the first and second pluralities of fingers comprise steel.

13. The system of claim **10**, wherein the cylindrical bladder comprises a plurality of protrusions configured to contact an inner surface of the cylindrical body, wherein the plurality of protrusions are configured to create a plurality of pressure seals within the cavity.

14. The system of claim **10**, comprising a hydraulic pump configured to flow a fluid into the cavity through the port.

15. The system of claim **14**, wherein the fluid is a hydraulic fluid or oil.

16. The system of claim **10**, wherein each of the end caps comprises a curved inner surface, and each the first and second pluralities of fingers comprises a distal end having a curved profile, wherein each of the distal ends of the first or second pluralities of fingers is configured to engage with the curved inner surface of one of the end caps.

17. The system of claim **10**, wherein the oilfield accessory is a casing accessory and wherein the oilfield tubular is a casing, and wherein the casing accessory is disposed about the casing.

18. A method for crimping an oilfield tubular accessory to an oilfield tubular, comprising:

positioning a crimper about the oilfield tubular accessory to be secured to the oilfield tubular;

pumping a fluid in a cavity of a crimper body;

applying a radially inward force to the oilfield tubular accessory with a plurality of fingers of a bladder assembly disposed within the cavity of the crimper body, said force crimping the oilfield accessory to the oilfield tubular;

draining the fluid from the cavity; and

removing the crimper from the oilfield tubular accessory.

19. The method of claim **18**, wherein applying the radially inward force to the oilfield tubular accessory with the plurality of fingers of the bladder assembly disposed within the cavity of the crimper body comprises expanding an elastic portion of the bladder assembly coupled to the plurality of fingers in an axial direction and directing the plurality of fingers radially inward with end caps of the crimper body.

20. The method of claim **18**, wherein pumping the fluid in the cavity of the crimper body comprises pumping a hydraulic fluid or oil through a port of the crimper body with a hydraulic power pack.

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